Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended) A process for preparing polysulfides for use in a Kraft cooking liquor, comprising:

a) providing a liquor in the absence of lime mud, the liquor having therein sodium sulfide, oxygen and a transition metal oxide catalyst; and

b) reacting the sodium sulfide with the oxygen in the presence of the transition metal oxide catalyst, with the concentration of the catalyst in the liquor ranging from ~~0.05~~ 0.25 to 6.5 g/l, where the consumption rate of O_2 is at least $1.5X10^{-4}$ moles/l/sec, such that a selectivity of polysulfides greater than 65% is achieved.

Claim 2 (original) The process of claim 1, wherein the consumption rate of O_2 is at least $2X10^{-4}$ moles/l/sec.

Claim 3 (original) The process of claim 1, wherein the consumption rate of O_2 is at least $4X10^{-4}$ moles/l/sec.

Claim 4 (original) The process of claim 1, wherein the reaction is conducted in a self-recirculated reactor.

Claim 5 (original) The process of claim 4, wherein the reactor is a hollow shaft reactor.

Claim 6 (original) The process of claim 1, wherein the transition metal oxide is MnO_2.

Claim 7 (original) The process of claim 1, wherein the consumption rate of oxygen is controlled through the control of the partial pressure of oxygen in the reaction.

Claim 8 (original) The process of claim 4, wherein the consumption rate of oxygen is controlled through the control of the partial pressure of oxygen in the reaction.

Claim 9 (original) The process of claim 1, wherein the temperature at which the reaction is conducted is in the range of from about 70 to 99°C.

Claim 10 (original) The process of claim 1, wherein the temperature at which the reaction is conducted is in the range of from about 75 to 85°C.

Claim 11 (original) The process of claim 1, wherein the temperature at which the reaction is conducted is in the range of from about 75 to 80°C.

Claim 12 (previously presented) The process of claim 4, wherein the retention time in the reactor is from about 2 to 15 minutes.

Claim 13 (original) The process of claim 12, wherein the retention time ranges from about 3 to 10 minutes.

Claim 14 (original) The process of claim 12, wherein the retention time ranges from about 3 to 5 minutes.

Claim 15 (currently amended) The process of claim 4, wherein the oxygen consumption is greater [[than $4X10_{-4}$ moles/l/sec]] than $\underline{4X10^{-4}}$ moles/l/sec.

Claim 16 (original) The process of claim 1, wherein the selectivity is greater than 75%.

Claim 17 (original) The process of claim 1, wherein the selectivity is greater than 90%.

Claim 18 (currently amended) A process for preparing polysulfides for use in a Kraft cooking liquor, comprising:

a) providing a liquor in the absence of lime mud, the liquor having therein Na_2S, oxygen and a transition metal oxide; and

b) reacting the Na_2S with the oxygen in the presence of the transition metal oxide, with a concentration of the metal oxide in the liquor ranging from 0.5 to 6.5 g/l, and where the consumption rate of O_2 is sufficient and the partial pressure of oxygen is controlled to achieve a selectivity of polysulfides greater than at least 60%.

Claim 19 (canceled)

Claim 20 (original) The process of claim 18, wherein the reaction is conducted in a self-recirculated reactor.

Claim 21 (original) The process of claim 18, wherein the reaction is conducted in a hollow shaft self-recirculated reactor.

Claim 22 (original) The process of claim 18, wherein the transition metal oxide is MnO_2.